

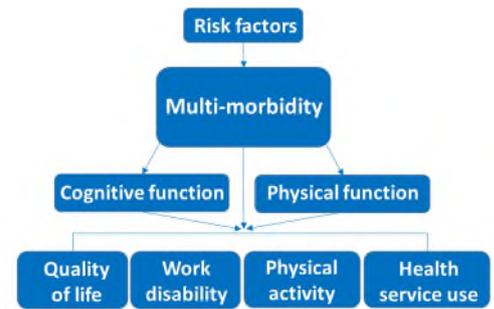
The Busseton Baby Boomer Study



What is the Busselton Baby Boomer Study?

The **Busselton Baby Boomer Study (BBBS)** is a longitudinal study designed to comprehensively characterize chronic disease in a community sample of ‘Baby-boomers’ (adults born 1946 to 1964) with the goal of assessing all participants every 5 years.

The general aim of the BBBS is to characterize multiple chronic conditions (also known as **multi-morbidity**) and risk and resilience factors, identify patterns of chronic diseases and relate them to changes over time in cognitive and physical function, and investigate relationships with the outcomes of quality of life, physical activity, work disability and use of health-care services.

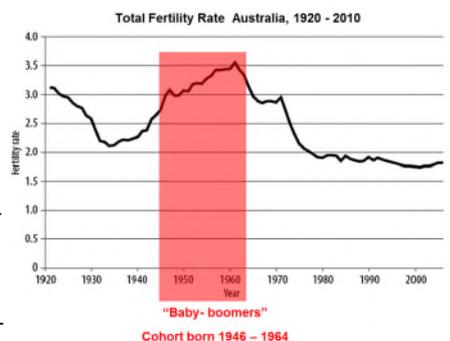


The first phase (baseline) study was conducted between 2010 and 2015 and collected data from 5,107 Baby-boomers, representing a remarkable **76% participation rate** in the City of Busselton. Residents were selected from the electoral roll and completed **questionnaires** and up to 4 hours of **clinical testing** involving cognitive, cardiac, respiratory and physical function, ear and eye assessments, body composition, bone density, sleep studies and blood samples for biochemistry and genetic research. **The BBBS is the most comprehensive survey ever undertaken by the BPMRI and the most detailed community health study in the Nation.** The second phase (follow-up) study of this cohort is underway and will continue until 2021.

Conditions studied:	Cardiovascular Disease	Respiratory Disease & Allergy	Mental Health & Neurological Conditions	Gastrointestinal Disease	Musculoskeletal Disorders
	hypertension, high cholesterol, cardiac pacemaker, heart attack, transient ischaemic attack, stroke, angina, claudication	asthma, chronic obstructive pulmonary disease, pneumonia, pleurisy, bronchitis, sinusitis, hay fever, food allergies, anaphylaxis	depression, Alzheimer’s disease, dementia, Parkinson’s disease, anxiety disorders including stress, PTSD, bipolar disorder, schizophrenia, epilepsy, ADHD, cognitive function & memory	ulcer, colonic polyps, coeliac disease, reflux disease, hiatus hernia, Crohn’s disease, ulcerative colitis, irritable bowel syndrome, diverticular disease, gallstones	osteoarthritis, rheumatoid arthritis, hip, back, shoulder and knee pain, osteoporosis, sarcopenia, gout, ankylosing spondylitis, systemic lupus erythematosus
	Endocrine Disease	Eye & Vision Disorders	Ear & Hearing Disorders	Sleep Disorders	Other conditions
	diabetes (Type I, II or gestational), metabolic syndrome, osteoporosis, kidney disease, thyroid disease	macular degeneration, glaucoma, myopia, cataracts, dry eye syndrome	hearing loss, chronic ear infection, tinnitus, Menieres’s disease, imbalance, vertigo	obstructive sleep apnoea, snoring, narcolepsy, excessive daytime somnolence	cancer, head or neck trauma, migraine, headache, anaemia, cirrhosis of the liver, fatty liver, poliomyelitis, urinary tract infection
Risk factors and associations:	Overweight & obesity - physical inactivity - diet & nutrition - smoking - alcohol use - ancestry, genetics & family history - education - marital status - occupational history - working environment & satisfaction - community values & social support - IT use/screen time - sun exposure - reproductive history - sleep quality & duration - socioeconomic status - and other environmental exposures & factors				
Biospecimens for research:	Biobank of DNA and RNA for genetic studies - serum & plasma for haematology & biochemistry tests and new biomarker discovery - throat swabs for microbiome studies investigating novel disease processes				

Why are we studying Baby-boomers?

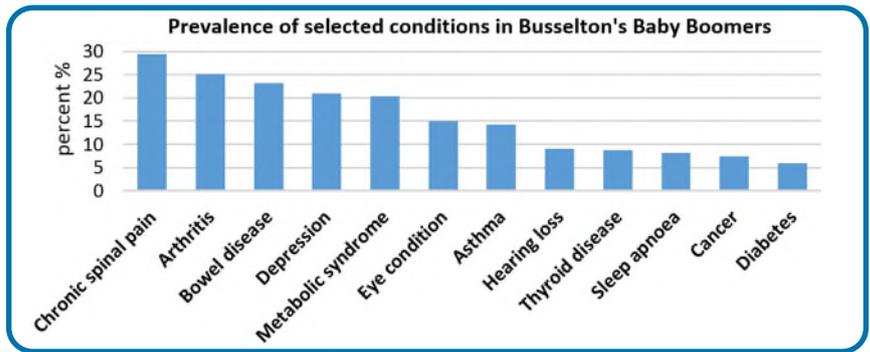
Australia’s population is ageing and the transition of the Baby-boomer generation from middle to older age is associated with increased multi-morbidity – a major driver of health costs in Australia. Models of healthcare must move from a focus on single conditions to one on multiple chronic conditions. New knowledge is needed to understand the impact of multi-morbidity on health and social outcomes, however the patterns, causes and impact of multi-morbidity in the population is not currently well known. Longitudinal studies are needed to **provide important evidence** on how to predict and, therefore, prevent the incidence and progression of multi-morbidity so as to reduce its impact on cognitive and physical function, improve quality of life and work force participation, and reduce health-care expenditure. The BBBS represents a powerful and unique medical and population health research resource to better understand mechanisms of disease and to identify and develop effective and targeted interventions to prevent or better manage diseases associated with ageing. Study participants benefit by receiving detailed study results to guide lifestyle improvements and early detection of health conditions.



The baseline survey provided contemporary prevalence data on a range of chronic diseases and conditions.

- Spinal pain, allergy, arthritis and bowel diseases occur in high prevalence among Busselton Baby-boomers.
- 1 in 5 participants had current symptoms or a diagnosis, of depression or anxiety.
- The prevalence of most conditions increased significantly with older age.

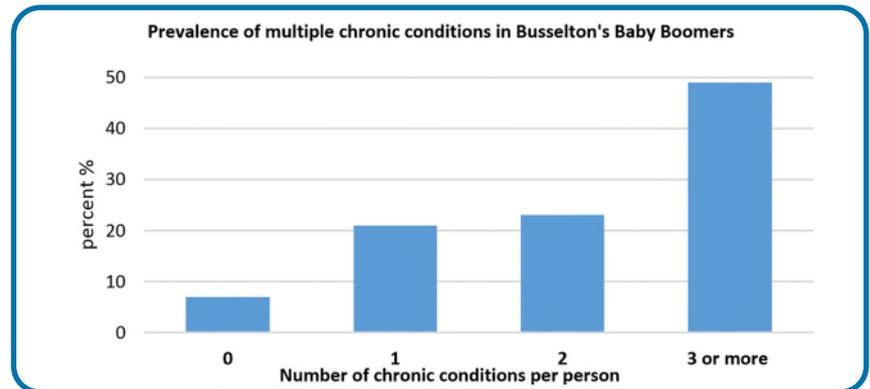
The BBBS will document the changing prevalence of conditions over multiple survey visits.



Nearly 50% of Baby-boomers reported 3 or more long-term chronic health conditions.

- Around 5% of Baby-boomers reported 7 or more long-term conditions, while less than 10% were free of any chronic condition.
- Some common co-occurring conditions included arthritis, spinal pain, depression, sleep apnoea, bowel diseases, asthma and chronic obstructive lung disease (COPD).

The BBBS will investigate the impact different patterns of chronic disease have on physical and cognitive function, and other outcomes.



The prevalence of modifiable risk factors for disease in Busselton is high, similar to other parts of the Nation.

- Baby-boomers who had 4 or more risk factors (over one third of the cohort), were 3 times more likely to have diabetes, depression or osteoporosis, and twice as likely to have anxiety, sleep apnoea or cancer.
- Obesity and physical inactivity were the biggest contributors to increased risk of chronic diseases.

The BBBS will investigate the factors contributing to chronic disease, and identify the barriers preventing Baby-boomers meeting recommended health guidelines.

Risk Factor	Criteria	BBBS 2015	NHS 2015	Comparison: BBBS vs National Health Survey (NHS)
Obesity	BMI > 29.9 kg/m ²	30%	34%	similar obesity prevalence
Overweight	BMI >25 - <29.9 kg/m ²	43%	45%	similar overweight prevalence
High Blood Pressure	>140/90 mmHg	28%	34%	similar high BP
Risky Alcohol Intake	>2 STD average daily	18%	20%	similar excess consumption
Physical Inactivity	<150 min per week	46%	45%	similar insufficiently active
Inadequate Fruit/Veg	< 5 veg / 2 fruit per day	76%	89%	better consumption
Tobacco Smoker	Current	10%	17%	smoke less

Significance of the BBBS

The BBBS is an invaluable resource for **National and International collaborative medical research**. Findings from the study will inform how to **prevent and better manage multi-morbidity** so that its impact on reduced function is minimised, quality of life is maximised, and health care costs reduced. The information will help to customize and target **health promotion and disease prevention strategies**, including interventions targeted at specific risk factor management or focused on areas where people have difficulties, such as functional ability or management of medications. Examples include; 1) when should individuals start actions to prevent or treat disability and what are the barriers to exercise-based interventions due to multi-morbidity?, 2) does better control of hypertension and other cardiovascular risk factors in middle age reduce cognitive impairment or dementia in later life?, 3) do interventions for hearing loss influence or reduce cognitive decline?

How can I participate in the BBBS?

The BBBS is recruiting participants who took part in the baseline survey conducted between 2010 and 2015. If you attended during this time we will contact you over the next 3 years to take part again. Further information, including research findings from the BBBS and previous Busselton Health Surveys can be accessed at bpmri.org.au

20,368
The number of different people that have attended at least one of the main surveys

1966
First survey commenced

Over **50**
Years of surveys

36,686
Population of Busselton in 2016

6000
Population of Busselton in 1966

10,821
People have attended between 2 and 10 surveys.
3115 people have attended 5 surveys or more

50,072
The total number of main survey attendances

6,690
Baby-boomers living in the City of Busselton in 2010

Over **450**
Research publications produced using Busselton Health Study data

5,107
Baby-Boomers attended the 2010-2015 survey

612,840
Estimated number of sheets of paper saved by the introduction of online questionnaires in the current survey of Baby-Boomers!

Over **25**
International consortia studies of genetics

66,300
Tubes of DNA, RNA, plasma & serum banked in the 2010-2015 survey

Over **3000**
Data variables per participant

Collaborating partners:



With thanks to:



The Community of Busselton and Surrounds

